

Increased Controls of Radioactive Material Quantities of Concern



RAMQC



Radiation Control Program 2006 Workshop

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How did we get here?

- September 2, 2005
 - The NRC issued a letter to the Agreement States describing the expectations for issuing the Increased Controls, reporting licensee implementation, and conduct of inspections.



How did we get here?

- September 7, 2005
 - The NRC issued a letter stating the Increased Controls are being issued under public health and safety authority



How did we get here?

- September 30, 2005
 - The Kansas Radiation Control Program issued a license amendment implementing the Increased Controls by license condition
 - 25 days to respond
 - 180 days to implement if required



How did we get here?

- March 30, 2006
 - Increased Controls are required to be in place
 - Inspections for compliance begin



What are the Increased Controls?



IC 1 Control Access

- Control access at all times



- Approved individuals (in writing)



IC 1 Control Access

- Trustworthy & Reliable (document basis)



- Escort unauthorized individuals



IC 2 Monitor, immediately detect , assess & respond

- Three basic elements

- Detection



- Delay



- Response



IC 2 Monitor, immediately detect , assess & respond

System is only as good as the weakest link



IC 2 Monitor, immediately detect , assess & respond

- Immediately respond to any unauthorized access
- Pre-arranged plan with LLEA



IC 2 Monitor, immediately detect , assess & respond

- Dependable means to transmit signals



- Notify Kansas Radiation Control Program
– 785-296-1560



IC 3 Transportation Requirements

- Carrier requirements
 - Use package tracking system
 - Trustworthiness & reliability program



IC 3 Transportation Requirements

- Carrier requirements
 - Maintain constant control/surveillance in transit
 - Have immediate communication



IC 3 Transportation Requirements

- Carrier requirements
 - Coordinate the expected time of arrival
 - Confirm receipt
 - Initiate investigation



IC 3 Transportation Requirements

- Licensee requirement – If shipping material 100 times the quantity of concern:
 - Notify the NRC in writing at least 90 days prior to shipment date (first time)



IC 3 Transportation Requirements

- Licensee requirement – If shipping material 100 times the quantity of concern:
 - Shall not ship material until the additional security measures (ASM's) are implemented (every time)



IC 3 Transportation Requirements

- Licensee requirement –
 - If receiving material greater than or equal to the quantity of concern:
 - Coordinate the expected time of arrival
 - Confirm receipt



IC 4 Mobile or Portable Device

- Portable device
 - Two independent physical controls



IC 4 Mobile or Portable Device

- Mobile device
 - Two independent physical controls (outside facility only)



- One physical barrier (in facility only)



IC 4 Mobile or Portable Device

- Devices in or on a vehicle or trailer
 - Disable the vehicle or trailer



IC 5 Documentation

- All documentation shall be retained for three years after it is no longer effective



IC 6 Sensitive Information Protection

- Details of the physical protection system



IC 6 Sensitive Information Protection

- Develop, maintain and implement policies and procedures
 - Controlling access to;
 - Proper handling of and
 - Protection againstUnauthorized disclosure of physical protection information



IC 6 Sensitive Information Protection

- Policies and procedures include:
 - General requirement for each person who possesses sensitive information, protect the information from unauthorized disclosure



IC 6 Sensitive Information Protection

- Policies and procedures include:
 - Protect the information during use, storage and transit



IC 6 Sensitive Information Protection

- Policies and procedures include:
 - Preparation, identification or marking and transmission



IC 6 Sensitive Information Protection

- Policies and procedures include:

- Access controls



- Destruction of documents



IC 6 Sensitive Information Protection

- Policies and procedures include:
 - Use of automatic data processing systems (computers)
 - Removal from the sensitive category



What are the nuclides and quantities of concern?





Table 1: Radionuclides of Concern

Radionuclide	Quantity of Concern ¹ (TBq)	Quantity of Concern ² (Ci)
Am-241	0.6	16
Am-241/Be	0.6	16
Cf-252	0.2	5.4
Cm-244	0.5	14
Co-60	0.3	8.1
Cs-137	1	27
Gd-153	10	270
Ir-192	0.8	22
Pm-147	400	11,000
Pu-238	0.6	16
Pu-239/Be	0.6	16
Se-75	2	54
Sr-90 (Y-90)	10	270
Tm-170	200	5,400
Yb-169	3	81



What is of concern?

- Any single source which equals or exceeds the quantity in Table 1



What is of concern?

- Any single nuclide (multiple sources) whose total activity equals or exceeds the quantity in Table 1 and the sources are co-located



What is of concern?

- Multiple nuclides whose sum of the fractions equals or exceeds 1 and the sources are co-located (Unity rule)

$$\frac{A}{\text{Lim}(A)} + \frac{B}{\text{Lim}(B)} \geq 1$$



Lessons Learned

- Test systems periodically



- Guard sensitive information



- Your system is only as good as the weakest link



Questions?

